

WHAT IS CLAIMED IS:

1. An ink set comprising a plurality of inks different in hues, wherein the plurality of inks includes a yellow ink containing a coloring agent that is a dye having:

a  $\lambda_{\max}$  of from 390 nm to 470 nm;

an  $I(\lambda_{\max} + 70 \text{ nm}) / I(\lambda_{\max})$  ratio of not greater than 0.4, in which  $I(\lambda_{\max})$  is the absorbance at  $\lambda_{\max}$  and  $I(\lambda_{\max} + 70 \text{ nm})$  is the absorbance at  $(\lambda_{\max} + 70 \text{ nm})$ ; and

a forced fading rate constant of not greater than  $5.0 \times 10^{-2}$  [hour<sup>-1</sup>], in which the forced fading rate constant is decided by dissolving and/or dispersing the dye in an aqueous medium to form an ink composition for ink jet recording, printing the ink composition on a reflection type medium, thereafter measuring a reflection density through a Status A filter, specifying one point having a reflection density (DB) in a yellow region of 0.90 to 1.10 as an initial density of the ink, forcibly fading the printed matter by use of an ozone fading tester that can regularly generate 5 ppm of ozone, and determining the time taken until the reflection density reaches 80% of the initial density.

2. The ink set as described in claim 1, wherein the dye has the  $\lambda_{\max}$  of from 390 nm to 470 nm and the  $I(\lambda_{\max} + 70 \text{ nm}) / I(\lambda_{\max})$  ratio of not greater than 0.2.

3. The ink set as described in claim 1, wherein the dye has

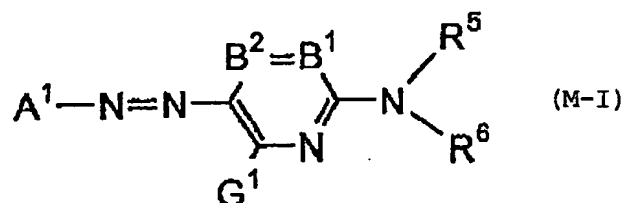
an oxidation potential of higher than 1.0 V (vs SCE).

4. An ink set comprising a plurality of inks different in hues, wherein the plurality of inks includes a yellow ink containing a coloring agent that is a dye represented by the following general formula (1), the dye having a  $\lambda_{\text{max}}$  of from 390 nm to 470 nm:



wherein A and B each independently represent a heterocyclic group which may be substituted.

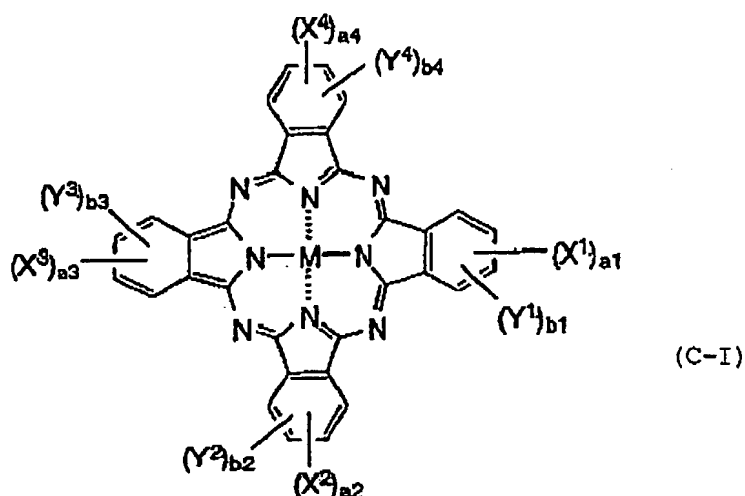
5. The ink set described in claim 1 or 4, which further comprises at least a coloring agent represented by the following general formula (M-I) as the magenta ink:



wherein  $A^1$  represents a residue of a 5-membered heterocyclic diazo component  $A^1-NH_2$ ;  $B^1$  and  $B^2$  each represent a nitrogen atom,  $-CR^1=$  or  $-CR^2=$ , and when one of  $B^1$  and  $B^2$  represents a nitrogen atom, the other represents  $-CR^1=$  or  $-CR^2=$ ;  $R^5$  and  $R^6$  each independently represents a hydrogen atom, an aliphatic group, an aromatic group, a heterocyclic group, an acyl group, an alkoxycarbonyl group, an aryloxycarbonyl

group, a carbamoyl group, an alkyl- or arylsulfonyl group or a sulfamoyl group, which may further have a substituent group;  $G^1$ ,  $R^1$  and  $R^2$  each independently represents a hydrogen atom, a halogen atom, an aliphatic group, an aromatic group, a heterocyclic group, a cyano group, a carboxyl group, a carbamoyl group, an alkoxycarbonyl group, an aryloxy carbonyl group, a heterocyclic oxycarbonyl group, an acyl group, a hydroxyl group, an alkoxyl group, an aryloxy group, a heterocyclic oxy group, a silyloxy group, an acyloxy group, a carbamoyloxy group, an alkoxycarbonyloxy group, an aryl-oxycarbonyloxy group, an amino group (containing a heterocyclic amino group and an anilino group), an acylamino group, a ureido group, a sulfamoylamino group, an alkoxycarbonylamino group, an aryloxy carbonylamino group, an alkyl- or arylsulfonylamino group, a heterocyclic sulfonylamino group, a nitro group, an alkyl- or arylthio group, an alkyl- or arylsulfonyl group, a heterocyclic sulfonyl group, an alkyl- or arylsulfinyl group, a heterocyclic sulfinyl group, a sulfamoyl group, a sulfo group or a heterocyclic thio group, which may be further substituted; and  $R^1$  and  $R^5$ , or  $R^5$  and  $R^6$  may combine with each other to form a 5- or 6-membered ring.

6. The ink set described in claim 1 or 4, which further comprises a coloring agent represented by the following general formula (C-I) as the cyan ink:



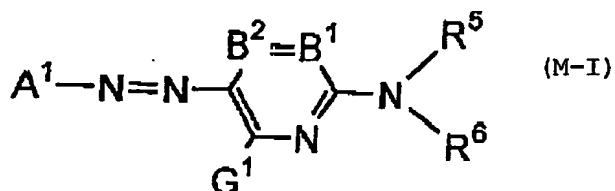
wherein  $X^1$ ,  $X^2$ ,  $X^3$  and  $X^4$  each independently represent  $-SO-Z^1$ ,  $-SO_2Z^1$ ,  $-SO_2NR^{21}R^{22}$ ,  $-CONR^{21}R^{22}$  or  $-CO_2R^{21}$  in which  $Z^1$  represents a substituted or unsubstituted alkyl, cycloalkyl, alkenyl, aralkyl, aryl or heterocyclic group; and  $R^{21}$  and  $R^{22}$  each independently represent a hydrogen atom or a substituted or unsubstituted alkyl, cycloalkyl, alkenyl, aralkyl, aryl or heterocyclic group;  $Y^1$ ,  $Y^2$ ,  $Y^3$  and  $Y^4$  each independently represent a monovalent substituent;  $a_1$  to  $a_4$  and  $b_1$  to  $b_4$  each independently represent an integer of from 0 to 4 indicating the number of substituents  $X^1$  to  $X^4$  and  $Y^1$  to  $Y^4$ , with the proviso that  $a_1$  to  $a_4$  are not 0 at the same time and when  $a_1$  to  $a_4$  and  $b_1$  to  $b_4$  each represent an integer of not smaller than 2, the plurality of  $X^1$ 's to  $X^4$ 's and  $Y^1$ 's to  $Y^4$ 's may be the same or different; and  $M$  represents a hydrogen atom or a metal atom, or oxide, hydroxide or halide thereof.

7. The ink set as described in claim 5, wherein the magenta ink includes a set of two or more inks different in ink concentration, and the ink concentration of one magenta ink is 0.05 to 0.5 time that of the other magenta ink.

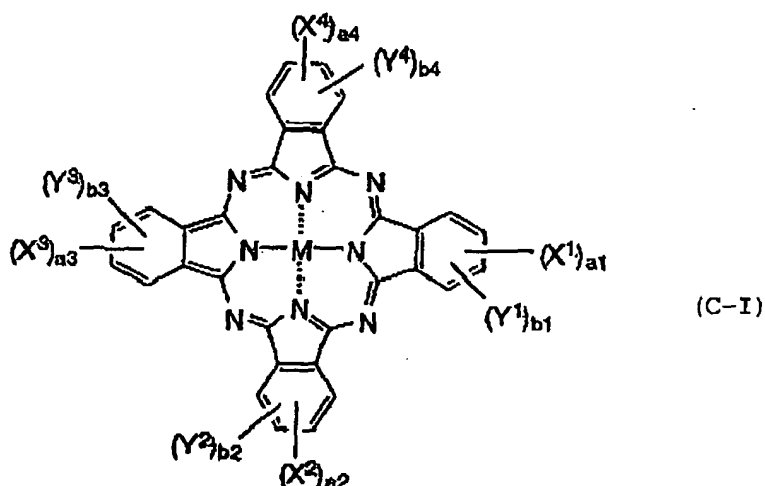
8. The ink set as described in claim 6, wherein the cyan ink includes a set of two or more inks different in ink concentration, and the ink concentration of one cyan ink is 0.05 to 0.5 time that of the other magenta ink.

9. A color ink cartridge comprising at least a yellow ink, wherein the yellow ink includes the coloring agent described in claim 1 or 4.

10. The ink cartridge described in claim 9, which further comprises: a coloring agent represented by the following general formula (M-I) as the magenta ink; and a coloring agent represented by the following general formula (C-I) as the cyan ink:



wherein  $A^1$  represents a residue of a 5-membered heterocyclic diazo component  $A^1-NH_2$ ;  $B^1$  and  $B^2$  each represent a nitrogen atom,  $-CR^1=$  or  $-CR^2=$ , and when one of  $B^1$  and  $B^2$  represents a nitrogen atom, the other represents  $-CR^1=$  or  $-CR^2=$ ;  $R^5$  and  $R^6$  each independently represents a hydrogen atom, an aliphatic group, an aromatic group, a heterocyclic group, an acyl group, an alkoxycarbonyl group, an aryloxy carbonyl group, a carbamoyl group, an alkyl- or arylsulfonyl group or a sulfamoyl group, which may further have a substituent group;  $G^1$ ,  $R^1$  and  $R^2$  each independently represents a hydrogen atom, a halogen atom, an aliphatic group, an aromatic group, a heterocyclic group, a cyano group, a carboxyl group, a carbamoyl group, an alkoxycarbonyl group, an aryloxy carbonyl group, a heterocyclic oxycarbonyl group, an acyl group, a hydroxyl group, an alkoxyl group, an aryloxy group, a heterocyclic oxy group, a silyloxy group, an acyloxy group, a carbamoyloxy group, an alkoxycarbonyloxy group, an aryl-oxycarbonyloxy group, an amino group (containing a heterocyclic amino group and an anilino group), an acylamino group, a ureido group, a sulfamoylamino group, an alkoxycarbonylamino group, an aryloxy carbonylamino group, an alkyl- or arylsulfonylamino group, a heterocyclic sulfonylamino group, a nitro group, an alkyl- or arylthio group, an alkyl- or arylsulfonyl group, a heterocyclic sulfonyl group, an alkyl- or arylsulfinyl group, a heterocyclic sulfinyl group, a sulfamoyl group, a sulfo group or a heterocyclic thio group, which may be further substituted; and  $R^1$  and  $R^5$ , or  $R^5$  and  $R^6$  may combine with each other to form a 5- or 6-membered ring,



wherein  $X^1$ ,  $X^2$ ,  $X^3$  and  $X^4$  each independently represent  $-\text{SO}-Z^1$ ,  $-\text{SO}_2Z^1$ ,  $-\text{SO}_2\text{NR}^{21}\text{R}^{22}$ ,  $-\text{CONR}^{21}\text{R}^{22}$  or  $-\text{CO}_2\text{R}^{21}$  in which  $Z^1$  represents a substituted or unsubstituted alkyl, cycloalkyl, alkenyl, aralkyl, aryl or heterocyclic group; and  $\text{R}^{21}$  and  $\text{R}^{22}$  each independently represent a hydrogen atom or a substituted or unsubstituted alkyl, cycloalkyl, alkenyl, aralkyl, aryl or heterocyclic group;  $Y^1$ ,  $Y^2$ ,  $Y^3$  and  $Y^4$  each independently represent a monovalent substituent;  $a_1$  to  $a_4$  and  $b_1$  to  $b_4$  each independently represent an integer of from 0 to 4 indicating the number of substituents  $X^1$  to  $X^4$  and  $Y^1$  to  $Y^4$ , with the proviso that  $a_1$  to  $a_4$  are not 0 at the same time and when  $a_1$  to  $a_4$  and  $b_1$  to  $b_4$  each represent an integer of not smaller than 2, the plurality of  $X^1$ 's to  $X^4$ 's and  $Y^1$ 's to  $Y^4$ 's may be the same or different; and  $M$  represents a hydrogen atom or a metal atom, or oxide, hydroxide or halide thereof.

11. An ink jet printer using the ink set as described in claim 1 or 4.

12. An image recording method which comprises using the ink set described in claim 1 or 4 to conduct color printing.